



## Michigan Department of Natural Resources Wildlife Division

### Ruffed Grouse Drumming Survey

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#### Introduction

Like many wildlife species, ruffed grouse breed in the spring. During this time, males claim territories and try to attract females. During courtship displays, males will raise the crests on the top of their heads, the ruffs on the sides of their necks, and their fan-shaped tails. Males also create a well-known springtime drumming sound by rapidly beating their wings while standing on a stationary object. They start slowly and it sounds like loud thumps at first, but as the wings build up speed it sounds like a drum or a 2-cycle engine starting. The sounds are created by the compression of air between the birds' bodies and their wings.

The Wildlife Division takes advantage of this spring ritual by conducting roadside routes to count the number of drums heard. Routes were established in locations of known grouse populations. Each route has ten listening stops that are consistent from year to year. The number of ruffed grouse drums heard during a fixed time interval (four minutes) is recorded at each stop. Data are summarized as the number of grouse heard per survey route. This survey provides the Wildlife Division an additional method to monitor the ruffed grouse population.

#### Preliminary Grouse Drumming Results for 2008\*

(\*The numbers will be final when the annual status report is published later this year.)

Ruffed grouse drumming counts were conducted statewide along 109 survey routes in April and May 2008. Due to budget constraints, drumming counts were not run statewide in 2007. However, the statewide drumming survey was conducted in 2006, which provided data from 95 routes. A paired t-test was performed using data from 88 routes run in both years. There was a 29% increase ( $t=2.3$ ,  $P=0.03$ ) in the average number of drums heard per route between 2006 (8.8) and 2008 (11.4).

Analysis at the regional scale indicated there was a 30% increase in the average number of drums heard per route in Zone 1 (Upper Peninsula) between 2006 (11.2) and 2008 (17.32) ( $n=35$ ;  $t=-2.0$ ,  $P=0.05$ ). In Zone 2, there was no significant difference ( $P=0.68$ ;  $n=46$ ) between the number of drums heard per route in 2006 (10.26) and 2008 (9.74). Including data from all routes run, the greatest number of drums heard per route was in Zone 1, followed by zones 2 and 3 (Figure 1).

Ruffed grouse have ten-year cycles in abundance over much of Canada, Alaska, and the Great Lakes states of Wisconsin, Minnesota, and Michigan (Rusch et al. 1999). The population in Michigan is expected to peak in 2010 (Figure 1). Many theories have been proposed to explain these cycles including diseases, weather, forest fires, sunspots, starvation, crowding, predators, genetic changes, and chance (Rusch 1989).

## Literature Cited

Rusch, D.H. 1989. The grouse cycle. Pages 210-226 in S. Atwater and J. Schnell editors. Ruffed Grouse. Stackpole Books. Harrisburg, Pennsylvania, USA.

Rusch, D.H., J.R. Cary, and L.B. Keith. 1999. Pattern and process in ruffed grouse cycles. Midwest Fish and Wildlife Conference. 61:238.

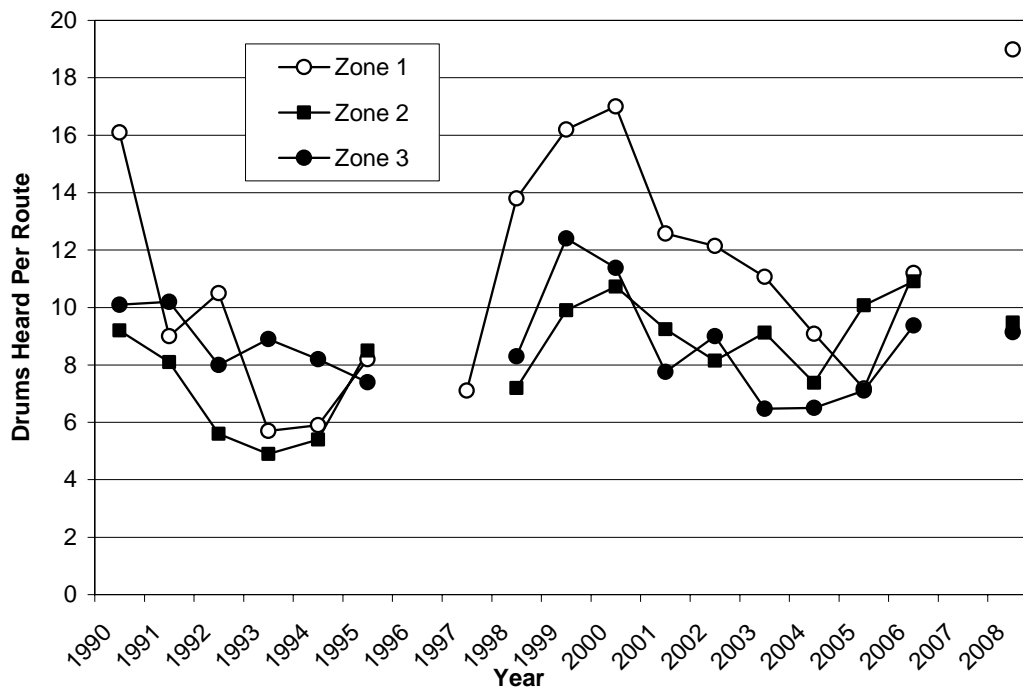


Figure 1. Ruffed grouse breeding population index (drums per route) in Michigan, 1990-2008. Drumming surveys were not conducted statewide in 1996 and 2007 and were conducted only in Zone 1 in 1997.